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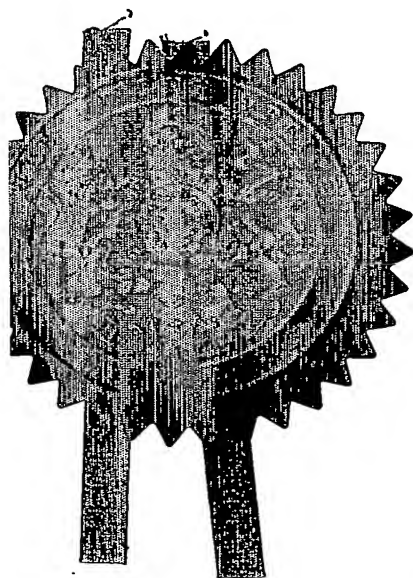
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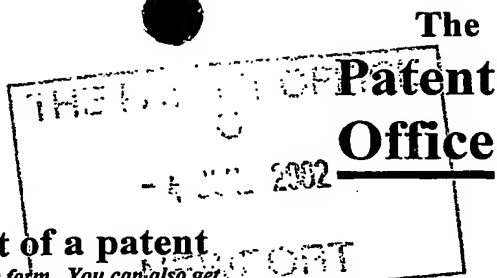
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0215442.5

04 JUL 2002

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SY20 9JS

Patents ADP number (if you know it)

8417685201

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

A Dispenser

5. Name of your agent (if you have one)

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Continuation sheets of this form

Description 9

Claim(s) 3

Abstract

Drawing(s) 9 + 9 fm.

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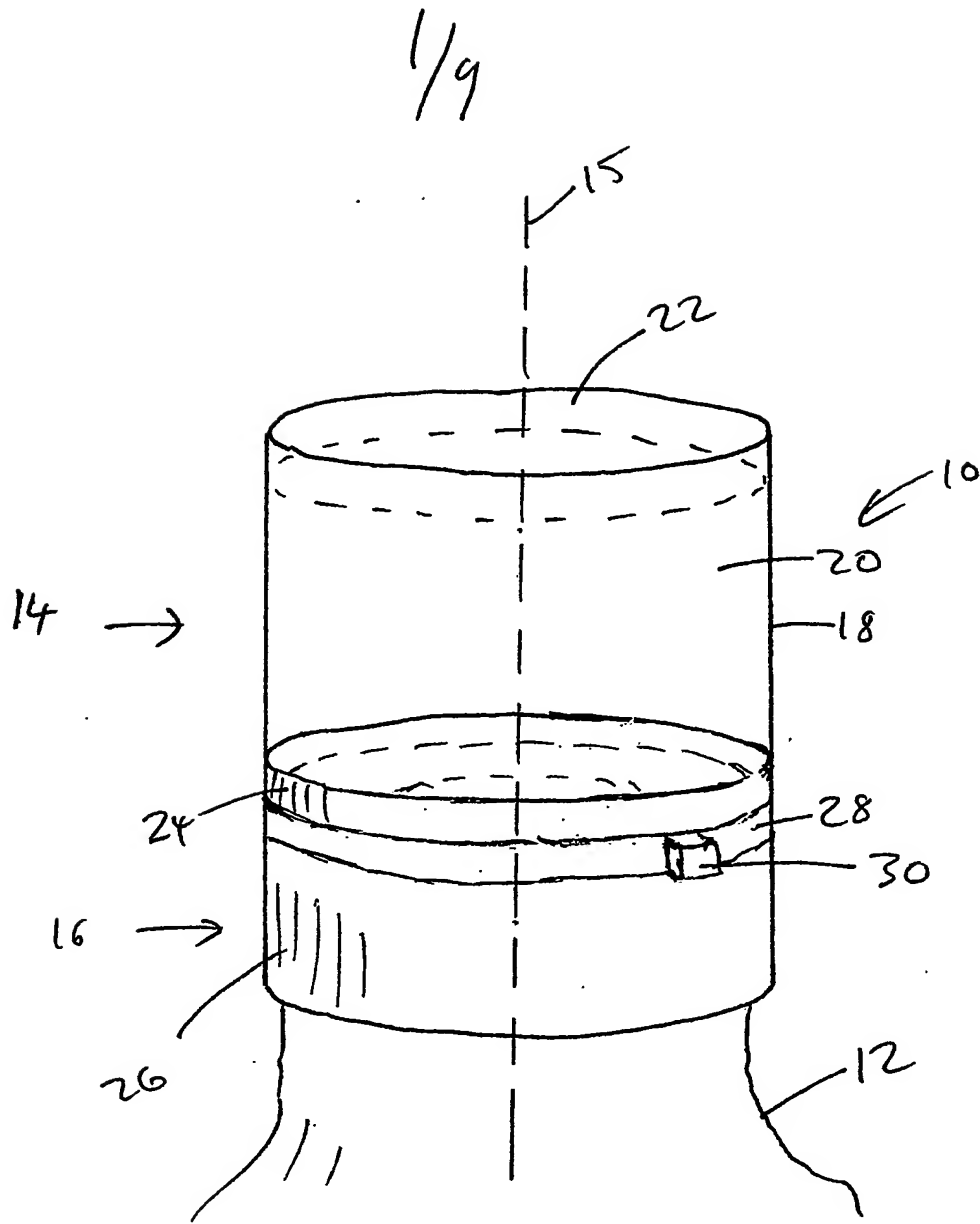
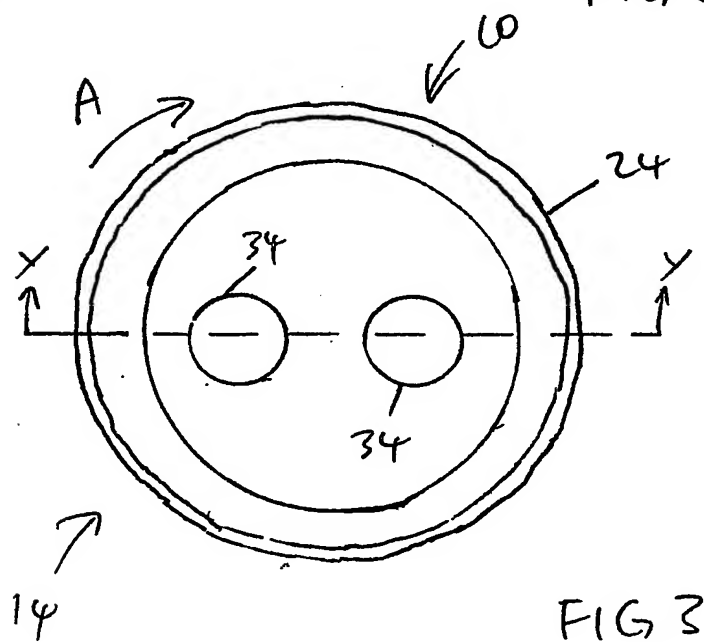
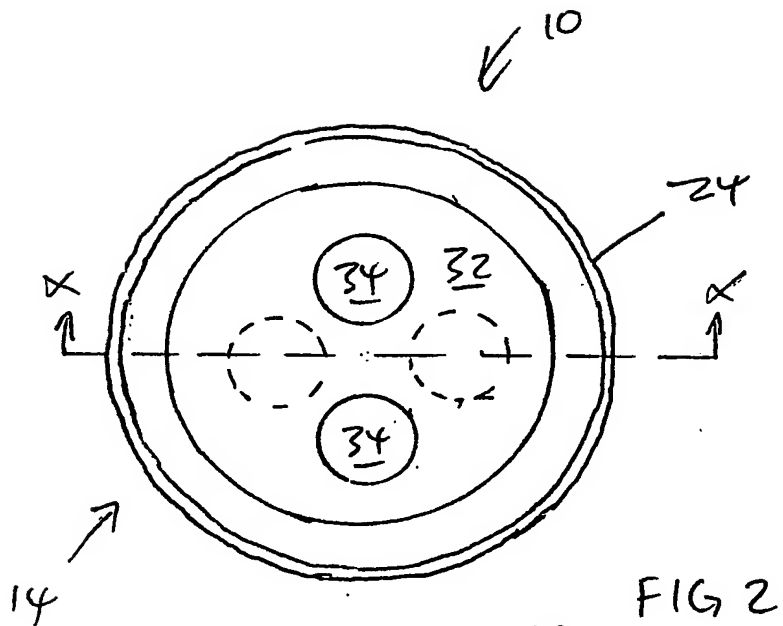


FIG. 1.

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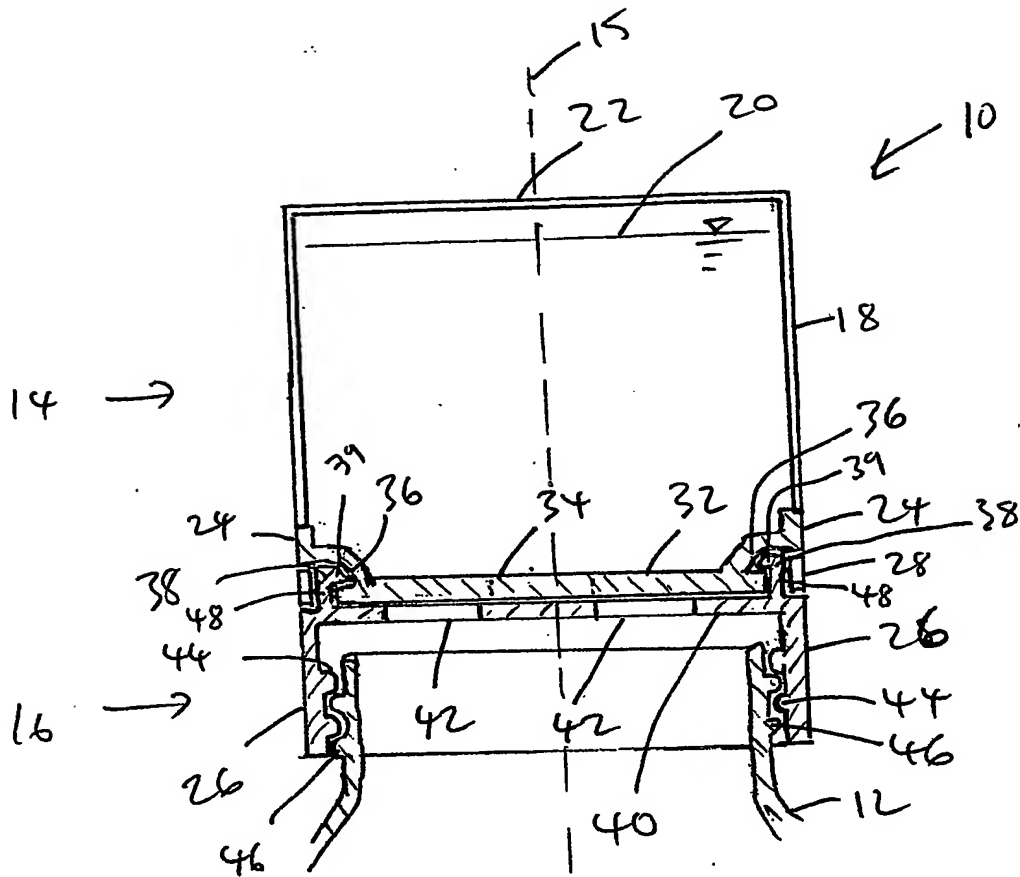


FIG 4

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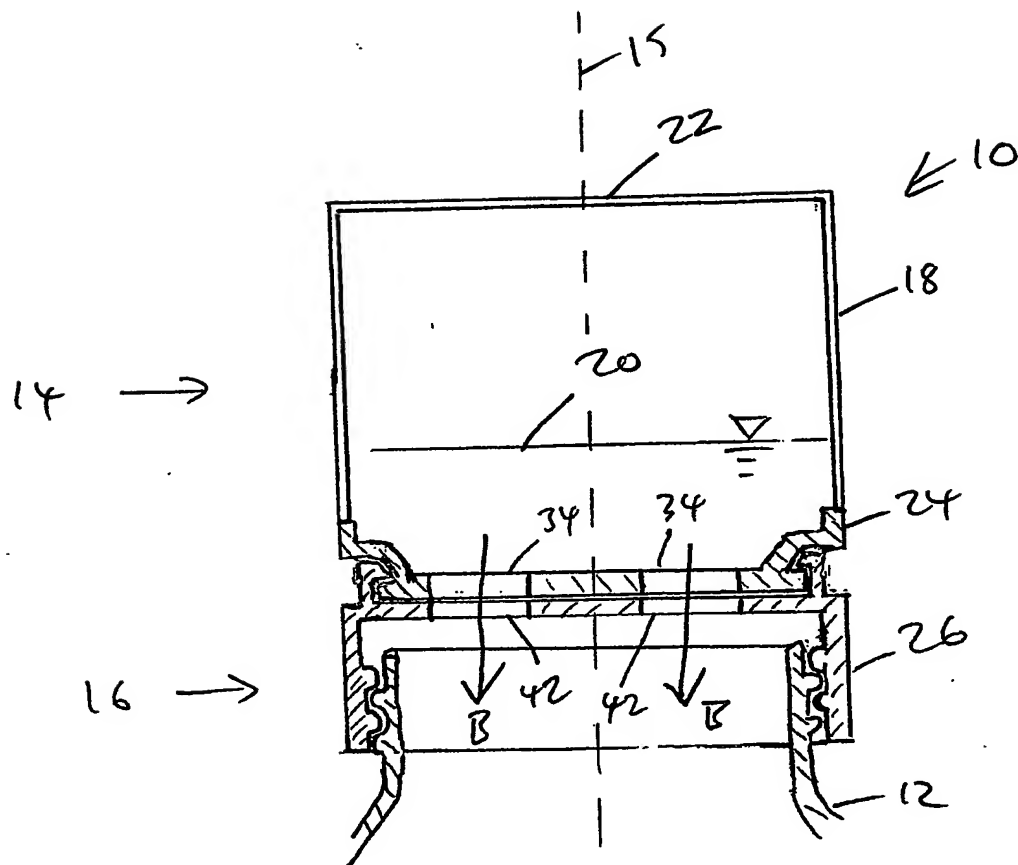


FIG 5

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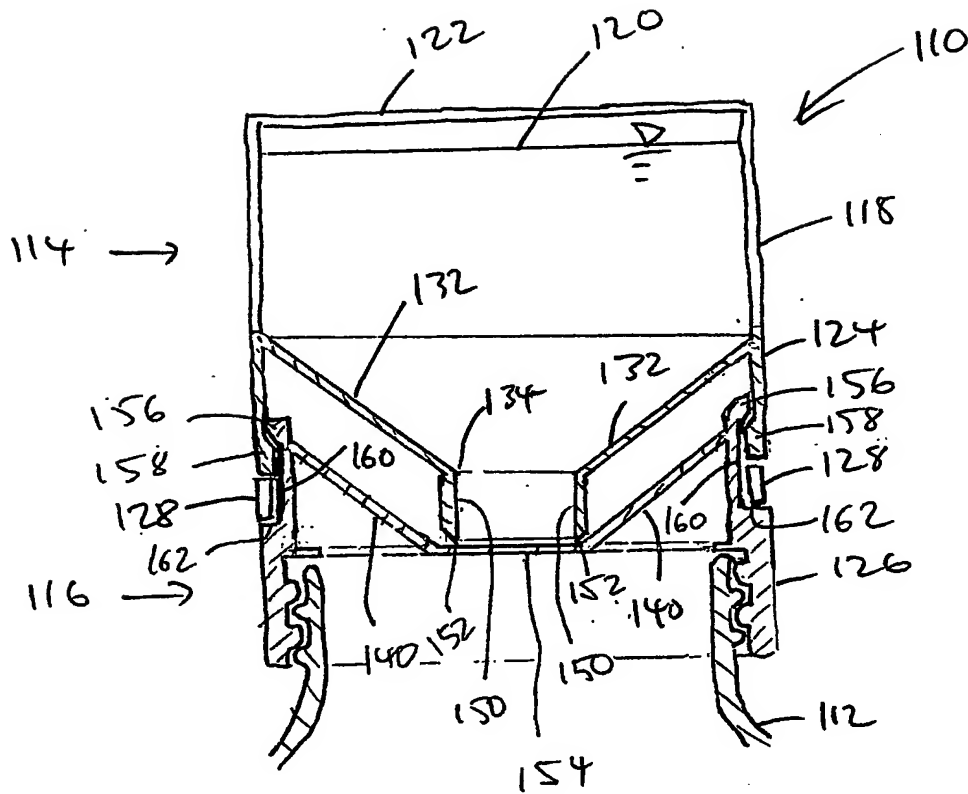


FIG 6

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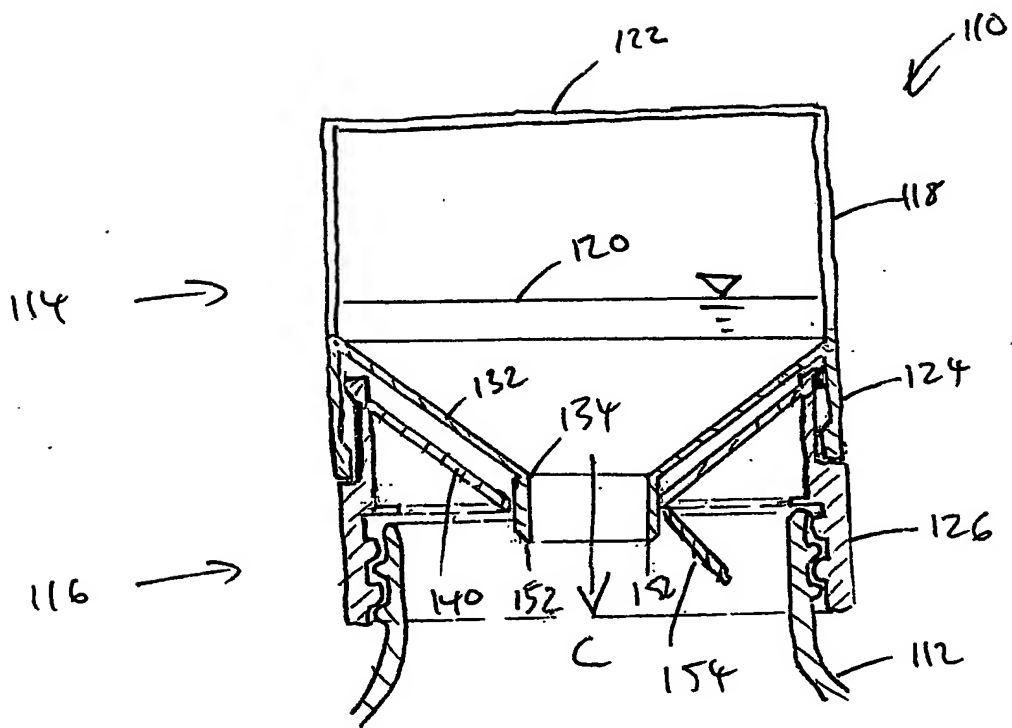


FIG 7

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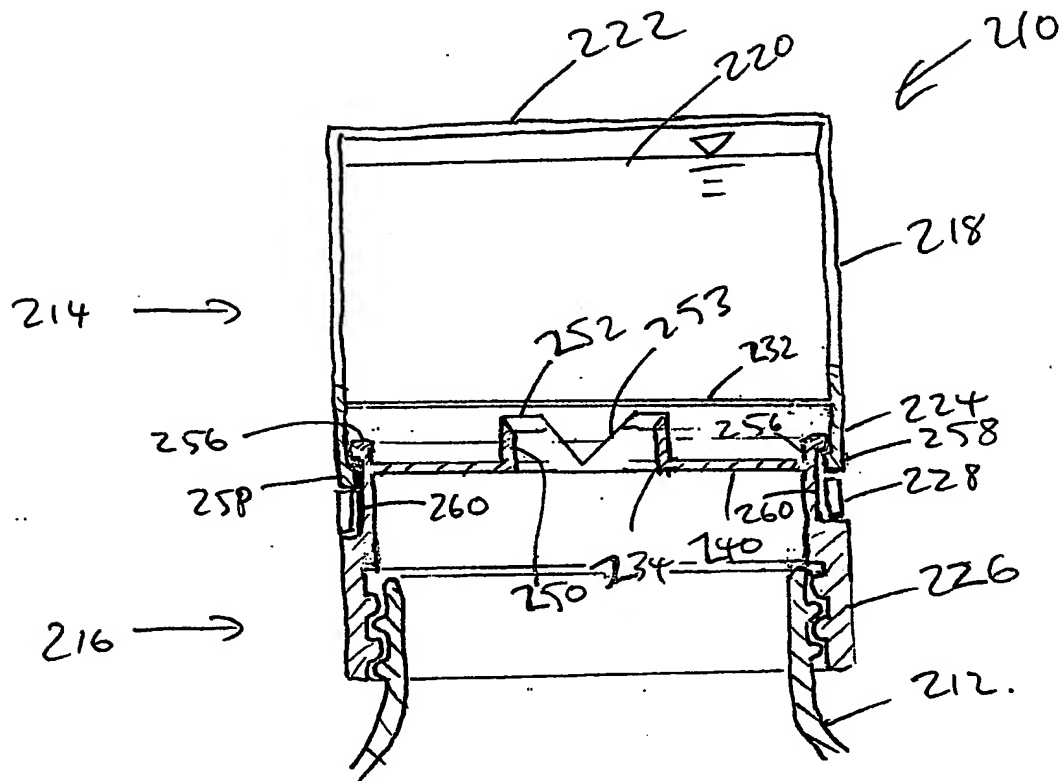


FIG 8

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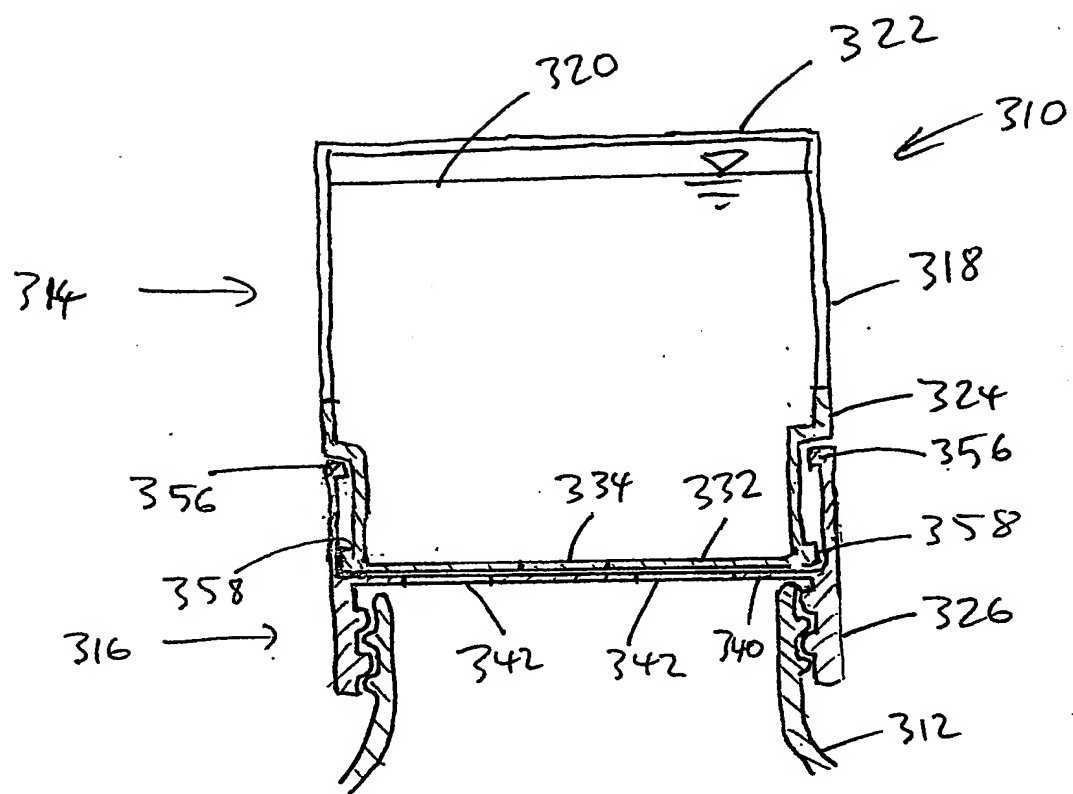


FIG 9

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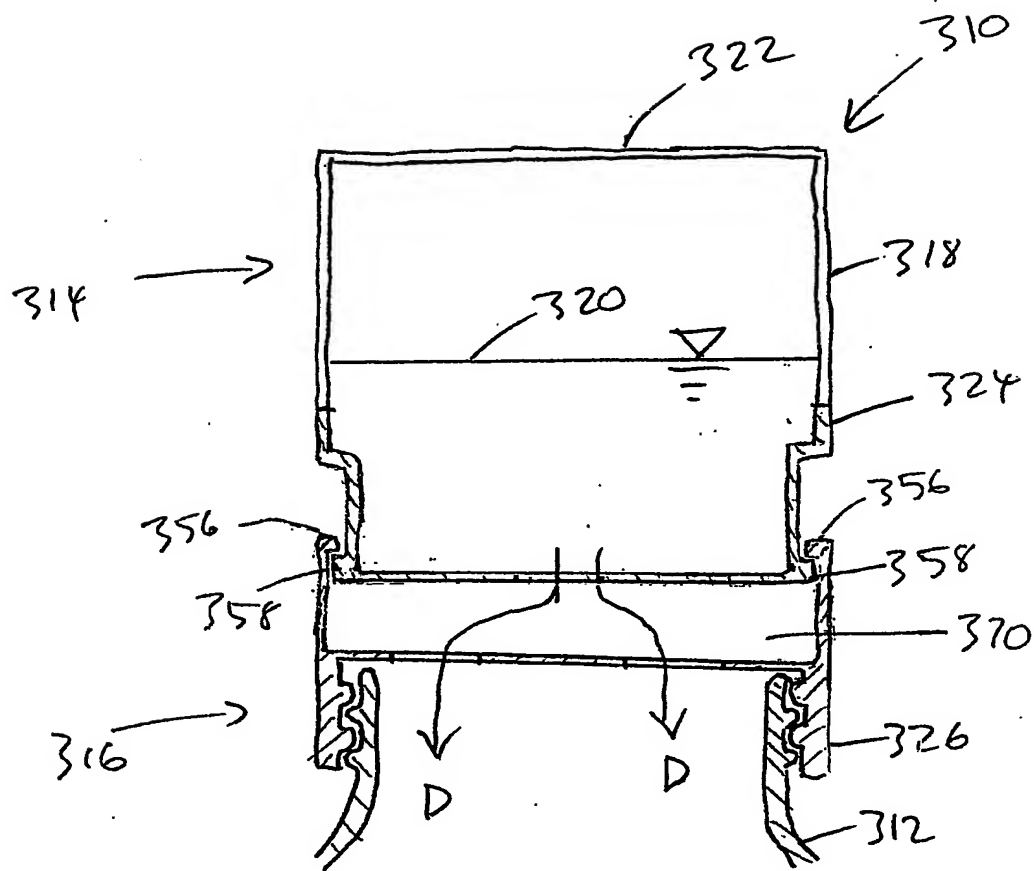


FIG. 10

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A Dispenser

The present invention relates to a dispenser. More particularly, the present invention relates to a dispenser for selectively dispensing material into a container.

- 5 It is known to sell pre-mixed alcoholic and non-alcoholic beverages. Examples of such beverages include pre-mixed gin and tonic, whisky and cola, rum and fruit juice, rum and cola, mineral water and fruit cordial as well as milkshakes and "smoothies". However, in some instances the taste of such pre-mixed drinks may degrade if left on the shelf for an extended period prior to consumption. In other instances the mixed
- 10 components may react together such that the mixture may no longer be drinkable or effective if not consumed almost immediately. An example of such a mixture would be that of water and an effervescent indigestion or cold remedy.

- Whilst the aforementioned problems may be overcome by keeping the two components
- 15 separate until consumption of a mixture comprising both components is desired, it is often inconvenient to store and carry both components separately prior to mixing. Furthermore, the act of mixing the components may lead to spillage, contamination and additional inconvenience to the consumer.

- 20 The present invention seeks to overcome, or at least mitigate, the problems of the prior art.

- Accordingly one aspect of the present invention provides a dispenser comprising attachment means for attachment to a container, a reservoir for holding material, a
- 25 barrier means to prevent the material entering the container, wherein the barrier means is removable by manipulation of the dispenser, thereby permitting the material to be selectively dispensed into the container.

- 30 Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view of a dispenser according to one embodiment of the present invention fitted to a container;

5 FIGURE 2 is a plan view of the dispenser of Figure 1 in a closed condition;

FIGURE 3 is a plan view of the dispenser of Figure 1 in an open condition;

10 FIGURE 4 is a cross-sectional view through the dispenser of Figure 2 along the axis X-X;

FIGURE 5 is a cross-sectional view through the dispenser of Figure 3 along the axis Y-Y;

15 FIGURE 6 is an axial cross-sectional view through a dispenser according to a second embodiment of the present invention in a closed condition;

FIGURE 7 is an axial cross-sectional view through the dispenser of Figure 6 in an open condition;

20 FIGURE 8 is an axial cross-sectional view through a dispenser according to a third embodiment of the present invention in a closed condition;

25 FIGURE 9 is an axial cross-sectional view through a dispenser according a fourth embodiment of the present invention in a closed condition; and

FIGURE 10 is an axial cross-sectional view through the dispenser of Figure 9 in an open condition.

30 Referring to Figure 1, a dispenser indicated generally at 10 according to one embodiment of the present invention is a screw fitted to a container 12, such as a bottle, jar or the like.

The dispenser comprises a first upper portion indicated generally at 14 and a second lower portion indicated generally at 16. It can be seen that both the first and second portions 14 and 16 are generally cylindrical in shape, being mounted about a common axis 15, with the upper portion being closed off to define a reservoir 22 containing a liquid 20. It can be seen that in this embodiment the major part of the first portion 14 is formed from transparent material 18 (eg transparent plastics) with the remainder having a textured or knurled first engagement portion 24 to assist a user in gripping the first portion 14. In other classes of embodiment, the reservoir may be entirely opaque, or the engagement portion 14 increased in size. A similar textured surface 26 is provided on the second portion 16. Examples of suitable materials from which the dispenser may be made include polyethylene terephthalate (PET) and polypropylene.

The first and second portions 14 and 16 are arranged so as to permit relative rotational movement therebetween to occur about their common axis 15. However, as shown in Figure 1, a tear-off band 28 frangibly connects the first and second portion 14 and 16 and preferably acts to both reduce the risk of accidental relative rotation occurring and to indicate whether the dispenser has been tampered with or used. The band 28 is provided with a projecting portion 30 that enables a user of the dispenser to grasp the band and remove it, as is well known. In other embodiments, the band 28 may be replaced by a direct frangible connection between the portions 14 and 16. A further frangible connection (not shown) may be provided between the dispenser 10 and the container 12 for similar reasons.

Referring now to Figures 2 and 4 which respectively illustrate plan and cross-sectional views through the dispenser 10 when in a closed condition, it can be seen that the first portion 14 additionally comprises a first wall 32 having, in this embodiment, two through holes 34 provided therein in an opposed radially equidistant position relative to the axis 15. The position, number and size of the hole(s) 34 may be adjusted as required in other embodiments.

It can be seen that the first wall 32 is, in this embodiment, formed integrally with the first engagement portion 24, and furthermore that the intersection of the lower wall 32 and engagement portion 24 defines an annular undercut 36 to facilitate the engagement of the first portion 14 with a co-operating toothed ring 38 of the second portion 16.

5

The second portion 16 comprises a second wall 40 formed integrally with the second engagement portion 26. A toothed ring 38 extends upwardly from wall 40, the teeth 39 of which are arranged to engage with undercuts 36 of the first portion. The toothed ring 38 may be continuous or may have gaps therein to allow the teeth to flex more easily and thereby ease the assembly process. It is however preferable that at least a leg portion 48 of the ring 38 is continuous to improve the seal between the first and second portions 14 and 16.

10

The second wall 40 is provided with two through holes 42 radially equidistant from the axis 15 with respect to the through holes 34 of wall 32. The second wall 40 is in a face contacting relationship with first wall 32. However, in the position shown in Figure 2 holes 42 are circumferentially offset from holes 34 by approximately 90 degrees. The combination of the face contacting relationship of walls 32 and 40 and offset of the holes 34 and 42 means that there is no path for the liquid 20 to pass through the walls, which together define a barrier means.

20

It can be seen that the second engagement portion 26 is provided with threads 44 on its radially inner face to engage with co-operating threads 46 on the container. It will be appreciated that in alternative classes of embodiment, the second portion 16 may be provided with any suitable alternative means of engagement with the container 12 such as a simple frictional push fit, clip fitting or a frangible connection.

25

Turning now to Figures 3 and 5 the dispenser 10 is shown in an open or operative position. A user of the dispenser has removed band 28 and turned the first portion 14 in a clockwise direction A through substantially 90 degrees about axis 15 with respect to the second portion 16. A detent or stop (not shown) may be provided at a suitable position on either the first or second portions 14 and 16 to limit the extent of rotation

30

possible. In other embodiments, the first portion 14 may be capable of being turned anticlockwise only, or both clockwise and anticlockwise.

It can be seen that this rotation aligns through holes 34 in wall 32 with the corresponding through holes 42 in wall 40. This enables the liquid 20 in the reservoir 22 to pass through the holes 34 and 40 in a direction B into the container to which the dispenser 10 is attached. Thereafter, the user may shake the container to ensure a thorough mixing of the liquid 20 with liquid (not shown) held within the container 12 is achieved, before grasping portion 26 and unscrewing the dispenser 10 to enable the mixed contents of container 12 to be consumed or used. In some classes of embodiment, rather than removing the entire dispenser 10, it may be possible to detach the first portion 14 from the second portion 16 to enable the contents in container 12 to be poured out through holes 42.

Turning now to a second embodiment of the present invention as illustrated in Figures 6 and 7, like numerals have, wherever possible, been used for like parts of the dispenser with the addition of the prefix "1". Only the differences of the second embodiment with respect to the first embodiment are discussed in further detail.

It can be seen that the dispenser 110 according to the second embodiment of the present invention again comprises first and second portions 114 and 116. First and second walls 132 and 140 are again provided on the first and second portions 114 and 116 respectively. Walls 132 and 140 again define a barrier means between the reservoir 122 and the container. The walls 132 and 140 are inclined to form a frustro-conical or funnel-like shape.

A hole 134 is provided at the centre of wall 132 and has a cylindrical extension 150 extending downwardly therefrom terminating at a pointed circular tip 152. The tip 152 is arranged so as to contact a correspondingly dimensioned disc 154 positioned at the centre of wall 140. The periphery of the disc 154 is preferably weakened (eg by thinning the material at the interface between the funnel portion and the disc 154). To improve the seal between the tip 152 and its point of contact with the disc 154, this

region may be provided with suitable sealing material (eg an elastomeric material such as synthetic rubber).

5 The first portion 114 and second portion 116 engage together by means of a radially outwardly projecting lip or rim 156 of the second portion co-operating with a radially inwardly directing lip or rim 158 of the first portion 114. A recessed cylindrical region 160 of the second portion is provided beneath rim 156 to enable the first portion 114 to slide downwardly with respect to the second portion 116. The extent of sliding movement is restricted by an annular stop surface 162 provided at the lower extent of
10 the recessed region 160.

To dispense liquid 120 from the reservoir 122 into the container 112 a user removes band 128 that hitherto substantially prevented vertical sliding movement, before pushing downwardly on the first portion 114. This downward pressure causes the tip
15 152 to detach the majority of disc 154 from the remainder of wall 140 whilst preferably enabling the disc to remain connected to a part of the wall (so that it does not fall into the container). Once the disc 154 is displaced, the liquid 120 flows in a direction C from reservoir 122 into container 112. The funnel shape of wall 132 ensures that substantially all of the liquid is dispensed into the container 112. As in the first
20 embodiment the mixture of liquids in container 112 may then be poured out of the container once the dispenser 110 has been unscrewed therefrom.

Referring to Figure 8 which illustrates a third embodiment of the present invention, like parts have been indicated by like numerals with the addition of the prefix "2". It can be
25 seen that the dispenser 210 of the third embodiment operates using a similar principle to the dispenser 110 of the second embodiment. However, in this embodiment the second wall 240 of the second portion 216 merely acts to suspend one or more piercing tip(s) 252 to pierce the first wall 232 of the first portion 214, the wall 232 in this embodiment being in the form of a piercable plastics membrane. Wall 240 need not
30 therefore be in the form of an uninterrupted surface to act as a seal, rather it merely needs to be sufficiently strong to be able to support the tip 252 during the piercing operation. Thus, in this embodiment only wall 232 acts as the barrier means. Note that

extension 250 is not in the form of an uninterrupted cylinder. Instead, notches 253 are provided therein.

5 To dispense the liquid 220, the user removes band 128 and presses downwardly on the first portion 214 in a similar manner to the second embodiment, thus bringing wall 232 into contact with the tip 252 of hole 234. This downward movement causes the wall 232 to be pierced, thus forming a hole or holes in wall 232 through which the liquid 220 may be dispensed into the container 212. Notches 253 ensure that substantially all of the liquid 220 may be easily dispensed and may also act to ease the piercing
10 operation.

A fourth embodiment of the present invention is shown in Figures 9 and 10 in which like parts are again, wherever possible, designated by like numerals with the addition of the prefix "3". In this embodiment, walls 332 and 340 are again provided with two
15 holes 334 and two holes 342 respectively that are offset with relation to each other in a similar manner to the arrangement shown in Figure 2. As in the first embodiment, when the dispenser is in a closed condition, wall 332 is in a face contacting relationship with wall 340, thus preventing liquid 320 flowing from the reservoir 322 into the container 312.

20 To remove the barrier means created by walls 332 and 340, a user lifts the first portion 314 with respect to the second portion 316. The extent of this movement is limited by engagement of radially outwardly directed lip or rim 358 of the first portion 314 engaging with a corresponding radially inwardly directed lip or rim 356 of the second
25 portion 316. This axial movement of the first portion 314 away from the second portion 316 creates a chamber 370 between the first wall 332 and the second wall 340. The liquid 320 is able to flow into chamber 370 through holes 334 and then out of the chamber through the holes 342 in wall 340, the direction of flow being shown by arrows D. Once the liquid has been dispensed into the container 312, the dispenser 310
30 may be removed by unscrewing it from the container as in the previous embodiments.

In alternative classes of embodiment, a vertical guide formation may be provided between the first portion 314 and second portion 316 that only permits axial movement of the first portion relative to the second portion to occur.

5 It will be appreciated that the dispensers described above all offer a more convenient way of storing to materials or substances that require subsequent mixing, and that the dispensers then enable mixing to be achieved substantially without risk of contamination or spillage occurring in a user friendly-manner.

10 It should be appreciated that terms such as "upwardly" and "downwardly" used herein are for ease of reference only, and that such terms should not be construed to be limiting.

It will be further appreciated that numerous changes may be made within the scope of
15 the present invention. For example, the second wall may be provided over the mouth of the container rather than on the second portion. A closure may be provided at the top of the reservoir that may be opened once the material has been dispensed. This enables the contents of the container to be poured or consumed without removing the dispenser from the container. The dispenser may be adapted so as to provide a positive pressure to
20 the material during dispensing and may also have means to enable pressure in the container to be vented prior to or during dispensing. A scale may be provided on the reservoir to enable the amount of material being dispensed to be measured out and the barrier means reclosed. Any suitable arrangement for piercing the first or second wall may be used. As an alternative to piercing, a reclosable valve may be depressed by
25 manipulation of the dispenser. The dispenser may be non circular in shape and may be adapted to dispense solids such as powders and tablets (eg by providing larger and/or a greater number of holes), and gases (by providing a gas tight seal in the barrier means) into a container in addition to liquids as described above. It is envisaged that the third embodiment illustrated in Figure 8 would be particularly suited to this purpose.

30

As well as being used in relation to alcoholic and non alcoholic drinks, the dispenser may be used in numerous other applications. For example, the dispenser may be used

to add herbs, spices or other flavourings to a "cook-in" sauce or ready meal provided in the container, dispensing fruits or other flavourings into yoghurts, as well as in numerous other food and beverage related applications. The dispenser may also be used for biological and chemical applications (such as testing kits) in which a reactive
5 compound could be dispensed from the dispenser into a container without the risk of spillage or contamination, as well as for cosmetics and health and beauty products such as shampoos and conditioners. The dispenser may further have applications in household and vehicle related products (eg the dispensing of two-stroke oil into petroleum), and in pharmaceutical or medical products.

Claims

1. A dispenser comprising attachment means for attachment to a container, a reservoir for holding material, a barrier means to prevent the material entering the container, wherein the barrier means is removable by manipulation of the dispenser, thereby permitting the material to be selectively dispensed into the container.
2. A dispenser according to claim 1 comprising a first portion and a second portion.
3. A dispenser according to claim 2 wherein the first portion comprises the reservoir.
4. A dispenser according to claim 2 or claim 3, wherein the second portion comprises the attachment means.
5. A dispenser according to any preceding claim, wherein the spatial relationship between a first wall and a second wall provides the barrier means.
6. A dispenser according to claim 5, wherein the first wall is provided with a first through hole and the second wall is provided with a second through hole.
7. A dispenser according to claim 6, wherein at least one of the first and second walls are arranged so as to be movable by manipulation of the dispenser from a first closed position in which the barrier means is in place to a second open position in which the barrier means is removed.
8. A dispenser according to claim 7, wherein the movement from the first to the second position is a rotational movement.
9. A dispenser according to claim 7, wherein the movement from the first position to the second position is a vertical or an axial movement.

10. A dispenser according to any one of claims 5 to 9 when dependent upon claim 2, wherein the first wall is provided on the first portion and the second wall is provided on the second portion.

5

11. A dispenser according to any one of claims 1 to 4, wherein a first wall comprises the barrier means.

10

12. A dispenser according to claim 11, wherein the first wall is frangible or piercable to permit the selective dispensing of the material.

13. A dispenser according to claim 12, wherein piercing means is provided on the first portion.

15

14. A dispenser according to claim 14, wherein piercing means is provided on the second portion.

15. A dispenser according to claim 12, wherein the first wall is provided on the second portion.

20

16. A dispenser according to claim 16, wherein piercing means is provided on the first portion.

25

17. A dispenser according to claim 14 or claim 16, wherein the piercing means is associated with a through hole.

30

18. A container assembly comprising a container and a dispenser according to any one of claims 1 to 4, wherein a first wall is secured to the container proximate a mouth or opening of the container.

19. A container assembly according to claim 18 wherein the dispenser is provided with piercing means to pierce the first wall.

20. A container assembly according to claim 18 wherein a second wall is provided on the dispenser.

5 21. A container assembly according to claim 20 wherein the spatial relationship between a first wall and a second wall provides the barrier means.

22. A dispenser according to any one of claims 12 to 17, or a container assembly according to claim 19, wherein relative movement between the first portion and the
10 second portion enables the first wall to be pierced.

23. A container assembly comprising a container and a dispenser according to any one of claims 1 to 17 or 22.

15 24. A dispenser or container assembly substantially as hereinbefore described.

25. A dispenser or container assembly substantially as hereinbefore described with reference to, or as illustrated by, Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 of the drawings.

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